

We claim:

1 A fast-acting noise suppression device with a variable manual control of noise suppression, comprising:

(a) an input circuit operable to receive an electronic signal representing sound including noise;

(b) an output circuit operable to output an electronic signal representing sound;

(c) a noise suppression circuit coupled between the input circuit and the output circuit operable to effect variable amplification levels on the input signal as determined over time periods between 4 milliseconds and 100 milliseconds such that periods with volume levels within a low volume suppression range receive a relatively lower amplification than the periods with higher volume levels; and

(d) a variable manual control operable to adjust the low volume suppression range.

2 The noise suppression device of claim 1 where the amplification level varies continuously as a function of input volume level.

3. The noise suppression device of claim 2 where the amplification level varies smoothly as a function of input volume level

4 The noise suppression device of claim 1 further comprising a high volume level compression circuit operable to effect variable amplification levels on the input signal as determined over time periods between 4 milliseconds and 100 milliseconds such that periods with volume levels higher than a medium volume level range receive a lower amplification than periods with a medium volume level range.

5 The noise suppression device of claim 4 where the amplification level varies continuously as a function of input volume level.

6. The noise suppression device of claim 5 where the amplification level varies smoothly as a function of input volume level
7. The noise suppression device of claim 1 further comprising an input level adjusting circuit operable to adjust sensitivity of the input volume determination by adjusting the level of the input signal before the volume level is determined.
8. The noise suppression device of claim 1 where the time period is between 6 and 20 milliseconds.
9. A fast-acting noise suppression device with compression of high volume levels, comprising:
 - (a) an input circuit operable to receive an electronic signal representing sound including noise;
 - (b) an output circuit operable to output an electronic signal representing sound;
 - (c) a noise suppression circuit coupled between the input circuit and the output circuit operable to effect variable amplification levels on the input signal as determined over time periods between 4 milliseconds and 100 milliseconds such that periods with volume levels within a low volume suppression range receive a relatively lower amplification than the periods with higher volume levels; and
 - (d) a high volume level compression circuit operable to effect variable amplification levels on the input signal as determined over time periods between 4 milliseconds and 100 milliseconds such that periods with volume levels higher than a medium volume level range receive a lower amplification than periods with a medium volume level range.
10. The noise suppression device of claim 9 where the amplification level varies continuously as a function of input volume level.

11. The noise suppression device of claim 10 where the amplification level varies smoothly as a function of input volume level.

12. The noise suppression device of claim 9 further comprising an input level adjusting circuit operable to adjust sensitivity of the input volume determination by adjusting the level of the input signal before the volume level is determined.

13. The noise suppression device of claim 9 where the time period is between 6 and 20 milliseconds.

14. A fast-acting noise suppression device with a variable noise suppression using a look up table, comprising:

- (a) an input circuit operable to receive an electronic signal representing sound including noise;

- (b) an output circuit operable to output an electronic signal representing sound;

- (c) a noise suppression circuit coupled between the input circuit and the output circuit operable to effect variable amplification levels on the input signal as determined over time periods between 4 milliseconds and 100 milliseconds such that periods with volume levels within a low volume suppression range receive a relatively lower amplification than the periods with higher volume levels; and

- (d) where the variable amplification level is determined by applying the input volume level over a time period to a look up table.

15. The noise suppression device of claim 14 where the amplification level as determined via the look up table varies continuously as a function of input volume level.

16. The noise suppression device of claim 15 where the amplification level as determined via the look up table varies smoothly as a function of input volume level

17. The noise suppression device of claim 14 wherein the look up table contains values for high input volume levels such that periods with volume levels higher than a medium volume level range receive a lower amplification than periods with a medium volume level range.

18. The noise suppression device of claim 14 further comprising an input level adjusting circuit operable to adjust sensitivity of the input volume determination by adjusting the level of the input signal before the volume level is determined.

19. The noise suppression device of claim 14 where the time period is between 6 and 20 milliseconds.